

deposits of one and the same river. Neither are they Miocene, if the evidence of fossils is to be trusted; and we have no other guides in this case but the lithology and palæontology, since the identifiable and most characteristic fossils are also found in the Middle Bagshots of Bournemouth, in a precisely similar matrix, and in the same state of preservation. In determining the age of the deposits, great stress was laid on the supposed identity of the *Sequoia Coultzie* of Bovey with that of the Hamstead beds; but by visiting Bovey not long since, and obtaining perfect specimens of the cones, I satisfied myself that the Bovey plant is a true *Sequoia*, with scales growing at right angles from the axis, and with compressed winged seeds; while even more perfect specimens from Hamstead, obtained soon after, showed the scales inserted at the base, and the seeds wingless, falling thus more properly into *Ahrotaxis*. The foliage growth is also entirely different, though the leaves are similar. The point is of some importance, yet the mistake having been made by such "heroes of geology" as Heer and Pengelly, is extremely hard to eradicate.

J. STARRIE GARDNER.

A Rejected Address.

CONSCIOUS that the protestant is a weak-kneed *urochs*, I ask permission to protest by implication against a common trivial mistake. How long will people go on writing about "political meteorology" and the like, meaning, by this, haphazard prediction? The meteorologist is as near a cousin to the local "weather-prophet" as Helmholtz to the artisan who is making a spectacle-case; or, to use an illustration lent me by a lady, as the astronomer is to the astrologer.

April 9.

NUBES.

THE LIMBS OF LEPIDOSIREN PARADOXA.

DR. GÜNTHER, in his valuable work, "The Study of Fishes," says of Natterer's *Lepidosiren* from the Amazons, "It is one of the greatest desiderata of

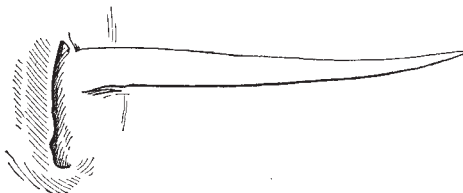


FIG. 1.

natural history collections." In fact, only seven years ago the opinion was current that Natterer had been deceived by specimens of *Protopterus* imported from Africa, or that in some way African specimens had been mixed with his American collections.

I was therefore greatly pleased to obtain recently for the Oxford University Museum, by purchase from a London dealer, specimens of the *Lepidosiren* of the Amazon well preserved in spirit. I immediately noticed a peculiarity about the pelvic fins, which it is the object of the present note to make known. These fins, whilst more robust than the pectorals, were remarkable for exhibiting upon their dorso-mediad surface a clothing of well-developed "villi," the appearance of which is best gathered from the accompanying sketches (Figs. 2 and 3).

As many as four "villi" were in some cases united at the base, or mounted on a short trunk.

No such "villi" are known in the African *Protopterus*, nor in *Ceratodus*.

The specimen figured by Natterer showed no trace of these "villi." This was a female, whilst the specimens recently imported which exhibit the "villi" are males.

I am at present engaged in an examination of the minute structure of these "villi" of the pelvic limbs of

Lepidosiren. Whether tactile or respiratory, they form a most remarkable feature, and it seems worth while to place a brief notice of them at once in the hands of naturalists.

Natterer's figure of *Lepidosiren* (which has often been copied) is not good. It does not give a fair idea of the proportions of the animal. I hope soon to publish a careful drawing of life-size. *Lepidosiren* is distinctly

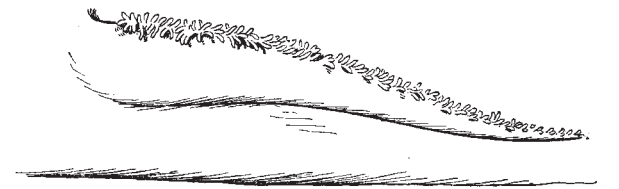


FIG. 2.

longer in proportion to breadth than is *Protopterus*, and there is a greater distance between the pectoral and pelvic fins in *Lepidosiren* (in proportion to total length) than in *Protopterus*. The median fin is not so deep in *Lepidosiren* as in *Protopterus*.

The woodcuts are as follows:—

Fig. 1 represents the left pectoral fin and opercular opening.

Fig. 2 shows the left pelvic fin, drawn to the same scale, in its natural position of rest; the long axis nearly parallel with the long axis of the body.

Fig. 3 shows the same pelvic fin turned forward (a position which the animal can give it in life), exposing the dorso-mediad face of the fin with its numerous "villi."

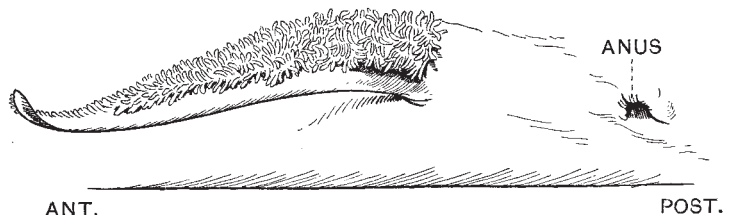


FIG. 3.

The lifting of the fin has also exposed the anus, which lies on the left side of the median line of the body.

E. RAY LANKESTER.

March 20.

BEEES AND DEAD CARCASSES.¹

DURING the last two hundred years our knowledge of natural and physical science has advanced by leaps and bounds, until, in most departments, it has risen to a level far exceeding anything which has been recorded during historic times. Hence, in dealing with improbable or impossible statements which have come down to us from classical or mediæval times, we are perhaps too apt to forget the old proverb that "there is no smoke without fire," and to dismiss them at once as vulgar superstitions, instead of seeking for the substratum of truth which will often be found to underlie them. Even so plain and simple a statement as that ants store up food was long discredited; for, as the ants of Northern Europe do not possess this habit, it was supposed to

¹ "On the so-called *Bugonia* of the Ancients, and its Relation to *Eristalis tenax*, a Two-winged Insect." By Baron C. R. Osten-Sacken. Reprinted from the *Bulletino della Società Entomologica Italiana*, Anno xxv. 1893.

have arisen from their having been seen carrying their pupæ (or, in common talk, "ant-eggs"). But a case which nearer concerns our present subject is that of the distant islands, upon which, as many Arabic writers gravely assured us, grew trees bearing fruit resembling human heads, which cry out "Wák-wák" at sunrise and sunset. What could be made of such a story? One fine day Mr. Wallace landed in the Aru Islands, and found that the Birds of Paradise were in the habit of settling on the trees in flocks, about sunrise, uttering this very cry. So the mystery was cleared up, though it is quite possible that Mr. Wallace himself may have been unaware of the existence of the legend when he put the explanation on record.

Everyone must be well aware that the ancients believed that bees either established themselves, or were produced spontaneously in dead carcasses. The two most familiar instances are to be found in the story of Samson (Judges, ch. xiv.), and in Virgil's *Georgics* iv.; but there are many other references to it in various authors, many of them of good repute, down to a very recent period. But with the dawn of a more scientific age the idea of bees being produced from carcasses was rejected; and the Biblical narrative was interpreted to mean that the bees had made their nest in a dried-up carcase or skeleton. As the Septuagint says expressly that Samson found the bees and honey in the *moult* of the lion, this explanation might not perhaps have appeared so very unreasonable, in default of a better. But several writers suggested that in cases where the spontaneous generation of bees from carcasses was positively asserted, flesh-flies may have been mistaken for bees; and in the pamphlet before us, which has suggested our own remarks, Baron Osten-Sacken, the eminent dipterist, has given a long account of the popular idea of "Bugonia," or the production of bees from the carcasses of oxen, and puts forth what certainly appears to be the correct explanation. "The original cause of this delusion lies in the fact that a very common fly, scientifically called *Eristalis tenax* (popularly the drone fly), lays its eggs upon carcasses of animals, that its larvæ develop within the putrescent mass, and finally change into a swarm of flies which in their shape, hairy clothing, and colour, look exactly like bees, although they belong to a totally different order of insects. Bees belong to the order *Hymenoptera*, and have four wings; the female is provided with a sting at the end of the body. The fly *Eristalis* belongs to the order *Diptera*, has only two wings, and no sting."

This thesis Osten-Sacken works out in great detail, quoting or referring to a large number of authors. Among other interesting points, he calls attention to another classical notion that *wasps* were produced from the carcasses of horses. These supposed wasps he identifies with *Helophilus*, a wasp-like genus of flies not far removed from *Eristalis*. Thus the one error illustrates and explains the other in a singularly apposite manner. As regards Samson, Osten-Sacken remarks, "The riddle . . . affords the proof of another fact, that the belief in the *Bugonia* was current among the people at that time, because, without that substratum, the riddle would not have had any meaning."

Osten-Sacken concludes his pamphlet with a detailed account of *Eristalis tenax*. The fly appears to be common in almost all parts of the Old World (and has latterly been introduced into America, also), so that the story of the *Bugonia* could easily have originated spontaneously (even if the bees themselves do not) in any country. Indeed, in all probability the story may have sprung up independently in more than one part of the world.

Baron Osten-Sacken has lived much in America, and is usually in the habit of writing in English to whatever journal he addresses his observations; and his present

interesting pamphlet is no exception. It will be seen that he writes not for entomologists only, but for scholars and literary men; and we have not attempted to do more than give a brief sketch of a critical essay which, to be appreciated, must be read in its entirety. But we cannot now do better than quote the Baron's concluding remarks.

"Except the silkworm and the honey-bee, I hardly know of any insect that can show an historical record equal to that of *Eristalis tenax*. The record begins in the dusk of prehistoric times, and continues up to the present date. In its earliest days *E. tenax* appears like a myth, a misunderstood and unnamed being, praised for qualities which it never possessed, a theme for mythology in prose and poetry, later on, the bubble of its glory having burst, it gradually settles into a kind of commensalism with man, it obtains from him 'a local habitation and a name'; it joins the Anglo-Saxon race in its immense colonial development, it vies with it in prodigies of fecundity, and at present renders hitherto unrecognised services in converting 'atrocious stuff' into pure and clean living matter!

"I close this chapter on the *Bugonia*-craze with the moral of it, contained in another sentence from Goethe:—

'Man sieht nur was man weiss.'"

W. F. KIRBY.

CHARLES EDWARD BROWN-SÉQUARD.

THIS distinguished physiologist and physician was born on April 8, 1817, at Port Louis, Mauritius. His father, Edward Brown, of Philadelphia, was of Irish origin, and his mother was of a French family which had been settled for some time at the "Isle of France." His early education was carried on in his native island, where at Port Louis there was and is a most excellent college for literature and science; but wishing to study for the medical profession, the young Charles Edward was sent, in about his twentieth year of age, to Paris, where he adopted a surname composed of his two patronymics.

In 1840 he obtained the M.D. degree at Paris, and as a pupil of Claude Bernard's, he followed closely the brilliant researches of his master, and with a boundless enthusiasm he commenced the study of nerve physiology, which he continued with but brief periods of intermission for the next fifty years of his life. By the accidents of his birth he became from his earliest years equally proficient in both the English and French tongues; but though an Englishman by birth, he always seemed to regard France as his home, and Paris as his resting-place. Owing in part to Brown-Séquard's facility of writing both French and English, his various papers on the functions of the sympathetic nerves and ganglia soon made his views known to a large circle of inquirers, and in 1858 he was invited to deliver a course of six lectures at the Royal College of Surgeons, in Lincoln's-Inn Fields. About this period, also, a number of the younger physicians and surgeons of Dublin persuaded him to come as far west as Dublin, to repeat this course, but at that time no college in the Irish capital was found willing to open its doors to the experimental physiologist, and the lectures were delivered in the back room of a concert hall. For the first ten or twelve years after taking his doctor's degree the struggle for life was somewhat arduous; his line of research was not productive of an income, and the pecuniary rewards for scientific writing or for scientific reports was excessively small. The writer calls to mind a visit paid to Brown-Séquard at his lodgings in Paris; the two rooms occupied by him were just under the sky, and their chief furniture consisted of books, pamphlets, and writing paper.